

Amendments to the Claims:

Claims 2 to 7, 9, 11 and 12 are amended as set forth hereinafter.

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Original) A method for operating a two-stroke engine including a two-stroke engine for a portable handheld work apparatus, the two-stroke engine including: a crankcase; a cylinder connected to said crankcase; said cylinder having a cylinder wall defining a cylinder; a piston displaceably mounted in said cylinder for reciprocating movement therein and said piston and said cylinder conjointly defining a combustion chamber; a crankshaft rotatably mounted in said crankcase; a connecting rod connecting said piston to said crankshaft so as to permit said piston to drive said crankshaft as said piston reciprocates in said cylinder; said crankcase having an inlet through which an air/fuel mixture is drawn into said crankcase during an intake phase of said engine; a transfer channel for conducting said air/fuel mixture from said crankcase into said combustion chamber; and, a fluid channel communicating with said transfer channel; the method comprising the steps of:

drawing a fluid into said transfer channel through said fluid channel during said intake phase and storing the inducted

fluid in said transfer channel with said fluid being a fuel-poor
20 to fuel-free fluid; and,

adjusting λ of said air/fuel mixture stored in said
crankcase in a range of approximately 0.2 to 0.6.

2. (Currently Amended) ~~The method of claim 1, wherein said~~
 ~~λ is adjusted in a range of~~ A method for operating a
two-stroke engine including a two-stroke engine for a portable
handheld work apparatus, the two-stroke engine including: a
5 crankcase; a cylinder connected to said crankcase; said cylinder
having a cylinder wall defining a cylinder; a piston displaceably
mounted in said cylinder for reciprocating movement therein and
said piston and said cylinder conjointly defining a combustion
chamber; a crankshaft rotatably mounted in said crankcase; a
10 connecting rod connecting said piston to said crankshaft so as to
permit said piston to drive said crankshaft as said piston
reciprocates in said cylinder; said crankcase having an inlet
through which an air/fuel mixture is drawn into said crankcase
during an intake phase of said engine; a transfer channel for
15 conducting said air/fuel mixture from said crankcase into said
combustion chamber; and, a fluid channel communicating with said
transfer channel; the method comprising the steps of:

drawing a fluid into said transfer channel through said
fluid channel during said intake phase and storing the inducted
20 fluid in said transfer channel with said fluid being a fuel-poor
to fuel-free fluid; and,

adjusting λ of said air/fuel mixture stored in said
crankcase in a range of approximately 0.3 to 0.5.

3. (Currently Amended) ~~The method of claim 1, wherein~~ A method for operating a two-stroke engine including a two-stroke engine for a portable handheld work apparatus, the two-stroke engine including: a crankcase; a cylinder connected to said crankcase; said cylinder having a cylinder wall defining a cylinder; a piston displaceably mounted in said cylinder for reciprocating movement therein and said piston and said cylinder conjointly defining a combustion chamber; a crankshaft rotatably mounted in said crankcase; a connecting rod connecting said piston to said crankshaft so as to permit said piston to drive said crankshaft as said piston reciprocates in said cylinder; said crankcase having an inlet through which an air/fuel mixture is drawn into said crankcase during an intake phase of said engine; a transfer channel for conducting said air/fuel mixture from said crankcase into said combustion chamber; and, a fluid channel communicating with said transfer channel; the method comprising the steps of:

drawing a fluid into said transfer channel through said fluid channel during said intake phase and storing the inducted fluid in said transfer channel with said fluid being a fuel-poor to fuel-free fluid;

adjusting lambda (λ) of said air/fuel mixture stored in said crankcase in a range of approximately 0.2 to 0.6; and,

said lambda (λ) [[is]] being greater than 0.6 at idle and drops dropping to a value of approximately 0.3 with increasing load.

4. (Currently Amended) ~~The method of claim 1, wherein~~ A method for operating a two-stroke engine including a two-stroke engine

for a portable handheld work apparatus, the two-stroke engine including: a crankcase; a cylinder connected to said crankcase; said cylinder having a cylinder wall defining a cylinder; a piston displaceably mounted in said cylinder for reciprocating movement therein and said piston and said cylinder conjointly defining a combustion chamber; a crankshaft rotatably mounted in said crankcase; a connecting rod connecting said piston to said crankshaft so as to permit said piston to drive said crankshaft as said piston reciprocates in said cylinder; said crankcase having an inlet through which an air/fuel mixture is drawn into said crankcase during an intake phase of said engine; a transfer channel for conducting said air/fuel mixture from said crankcase into said combustion chamber; and, a fluid channel communicating with said transfer channel; the method comprising the steps of:

drawing a fluid into said transfer channel through said fluid channel during said intake phase and storing the inducted fluid in said transfer channel with said fluid being a fuel-poor to fuel-free fluid;

adjusting lambda (λ) of said air/fuel mixture stored in said crankcase in a range of approximately 0.2 to 0.6; and,

said lambda (λ) ~~drops~~ dropping approximately continuously as a function of load.

5. (Currently Amended) ~~The method of claim 1, characterized in that~~ A method for operating a two-stroke engine including a two-stroke engine for a portable handheld work apparatus, the two-stroke engine including: a crankcase; a cylinder connected to said crankcase; said cylinder having a cylinder wall defining a

cylinder; a piston displaceably mounted in said cylinder for reciprocating movement therein and said piston and said cylinder conjointly defining a combustion chamber; a crankshaft rotatably mounted in said crankcase; a connecting rod connecting said piston to said crankshaft so as to permit said piston to drive said crankshaft as said piston reciprocates in said cylinder; said crankcase having an inlet through which an air/fuel mixture is drawn into said crankcase during an intake phase of said engine; a transfer channel for conducting said air/fuel mixture from said crankcase into said combustion chamber; and, a fluid channel communicating with said transfer channel; the method comprising the steps of:

drawing a fluid into said transfer channel through said fluid channel during said intake phase and storing the inducted fluid in said transfer channel with said fluid being a fuel-poor to fuel-free fluid;

adjusting lambda (λ) of said air/fuel mixture stored in said crankcase in a range of approximately 0.2 to 0.6; and,

said lambda (λ) remains remaining approximately constant in a part-load range following idle.

6. (Currently Amended) ~~The method of claim 1, wherein~~ A method for operating a two-stroke engine including a two-stroke engine for a portable handheld work apparatus, the two-stroke engine including: a crankcase; a cylinder connected to said crankcase; said cylinder having a cylinder wall defining a cylinder; a piston displaceably mounted in said cylinder for reciprocating movement therein and said piston and said cylinder conjointly

defining a combustion chamber; a crankshaft rotatably mounted in said crankcase; a connecting rod connecting said piston to said crankshaft so as to permit said piston to drive said crankshaft as said piston reciprocates in said cylinder; said crankcase having an inlet through which an air/fuel mixture is drawn into said crankcase during an intake phase of said engine; a transfer channel for conducting said air/fuel mixture from said crankcase into said combustion chamber; and, a fluid channel communicating with said transfer channel; the method comprising the steps of:

drawing a fluid into said transfer channel through said fluid channel during said intake phase and storing the inducted fluid in said transfer channel with said fluid being a fuel-poor to fuel-free fluid;

adjusting lambda (λ) of said air/fuel mixture stored in said crankcase in a range of approximately 0.2 to 0.6; and,

the inducted fluid volume $[[is]]$ being essentially completely stored in the volume of the transfer channel.

7. (Currently Amended) ~~The method of claim 1,~~ A method for operating a two-stroke engine including a two-stroke engine for a portable handheld work apparatus, the two-stroke engine including; a crankcase; a cylinder connected to said crankcase; said cylinder having a cylinder wall defining a cylinder; a piston displaceably mounted in said cylinder for reciprocating movement therein and said piston and said cylinder conjointly defining a combustion chamber; a crankshaft rotatably mounted in said crankcase; a connecting rod connecting said piston to said crankshaft so as to permit said piston to drive said crankshaft

as said piston reciprocates in said cylinder; said crankcase having an inlet through which an air/fuel mixture is drawn into said crankcase during an intake phase of said engine; a transfer channel for conducting said air/fuel mixture from said crankcase into said combustion chamber; and, a fluid channel communicating with said transfer channel; the method comprising the steps of:

15 drawing a fluid into said transfer channel through said fluid channel during said intake phase and storing the inducted fluid in said transfer channel with said fluid being a fuel-poor to fuel-free fluid;

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adjusting lambda (λ) of said air/fuel mixture stored in said crankcase in a range of approximately 0.2 to 0.6; and,

wherein said engine has a plurality of said transfer channels and each of said transfer channels has a volume lying between an entry window of said transfer channel to said combustion chamber and a transfer window to said crankcase; and, said total volume of said transfer channels is designed to be greater than the volume of said fluid inducted at full load.

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8. (Original) The method of claim 7, wherein said total volume of said transfer channels amounts to approximately 15% to 35% of the piston displacement of said engine.

9. (Currently Amended) ~~The method of claim 1,~~ A method for operating a two-stroke engine including a two-stroke engine for a portable handheld work apparatus, the two-stroke engine including: a crankcase; a cylinder connected to said crankcase; said cylinder having a cylinder wall defining a cylinder; a

piston displaceably mounted in said cylinder for reciprocating movement therein and said piston and said cylinder conjointly defining a combustion chamber; a crankshaft rotatably mounted in said crankcase; a connecting rod connecting said piston to said crankshaft so as to permit said piston to drive said crankshaft as said piston reciprocates in said cylinder; said crankcase having an inlet through which an air/fuel mixture is drawn into said crankcase during an intake phase of said engine; a transfer channel for conducting said air/fuel mixture from said crankcase into said combustion chamber; and, a fluid channel communicating with said transfer channel; the method comprising the steps of:

drawing a fluid into said transfer channel through said fluid channel during said intake phase and storing the inducted fluid in said transfer channel with said fluid being a fuel-poor to fuel-free fluid;

adjusting lambda (λ) of said air/fuel mixture stored in said crankcase in a range of approximately 0.2 to 0.6; and,

wherein said lambda (λ) of the mixture, which participates in the combustion, is adjusted to approximately 0.70 to 0.95 over the entire load range.

10. (Original) The method of claim 1, wherein said engine is a piston-port controlled scavenging advance store engine.

11. (Currently Amended) ~~The method of claim 1, wherein~~ A method for operating a two-stroke engine including a two-stroke engine for a portable handheld work apparatus, the two-stroke engine including: a crankcase; a cylinder connected to said

crankcase; said cylinder having a cylinder wall defining a cylinder; a piston displaceably mounted in said cylinder for reciprocating movement therein and said piston and said cylinder conjointly defining a combustion chamber; a crankshaft rotatably mounted in said crankcase; a connecting rod connecting said piston to said crankshaft so as to permit said piston to drive said crankshaft as said piston reciprocates in said cylinder; said crankcase having an inlet through which an air/fuel mixture is drawn into said crankcase during an intake phase of said engine; a transfer channel for conducting said air/fuel mixture from said crankcase into said combustion chamber; and, a fluid channel communicating with said transfer channel; the method comprising the steps of:

drawing a fluid into said transfer channel through said fluid channel during said intake phase and storing the inducted fluid in said transfer channel with said fluid being a fuel-poor to fuel-free fluid;

adjusting lambda (λ) of said air/fuel mixture stored in said crankcase in a range of approximately 0.2 to 0.6; and,

said engine ~~[[is]]~~ being a membrane-controlled scavenging advance store engine.

12. (Currently Amended) ~~The method of claim 1, wherein~~ A method for operating a two-stroke engine including a two-stroke engine for a portable handheld work apparatus, the two-stroke engine including: a crankcase; a cylinder connected to said crankcase; said cylinder having a cylinder wall defining a cylinder; a piston displaceably mounted in said cylinder for

reciprocating movement therein and said piston and said cylinder conjointly defining a combustion chamber; a crankshaft rotatably mounted in said crankcase; a connecting rod connecting said piston to said crankshaft so as to permit said piston to drive said crankshaft as said piston reciprocates in said cylinder; said crankcase having an inlet through which an air/fuel mixture is drawn into said crankcase during an intake phase of said engine; a transfer channel for conducting said air/fuel mixture from said crankcase into said combustion chamber; and, a fluid channel communicating with said transfer channel; the method comprising the steps of:

drawing a fluid into said transfer channel through said fluid channel during said intake phase and storing the inducted fluid in said transfer channel with said fluid being a fuel-poor to fuel-free fluid;

adjusting lambda (λ) of said air/fuel mixture stored in said crankcase in a range of approximately 0.2 to 0.6; and,

the engine [[has]] having a membrane-controlled or rotating-disc controlled mixture inlet and a piston-port controlled fluid inlet.